REMARKS

Claims 21-24, 27, 29, 31, 33, 35-36 and 69 will be pending in this application, if the amendment is entered. Claims 21-24, 26-36 and 69 stand rejected. Claims 26, 28, 30, 32 and 34 have been canceled. Claims 21 and 31 have been amended.

Support for the amendment to claim 21 can be found in the specification, for example, at pages 27-28 (Example 9) where MCP-4 and an antigen are administered as separate physical entities, *i.e.*, not physically linked as a fusion protein.

This amendment and response has been prepared according to the USPTO's revised amendment format.

Rejection under 35 U.S.C. § 102

Claims 21-24, 26-32, 35-36 and 69 stand rejected under 35 U.S.C. § 102(b) as being anticipated by PCT International Publication No. WO 99/46392 ("Kwak"). Applicants have canceled claims 26, 28, 30, 32 and 34, which are directed to a fusion protein. Therefore, the rejection with respect to those claims is moot.

As amended, claim 21 recites a method wherein the administered antigen and chemokine are not physically linked as a fusion protein. Kwak, on the other hand, refers to a physically linked fusion protein comprising a chemokine and either a tumor or viral antigen. A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. M.P.E.P. § 2131. Therefore, applicants submit that claim 21, and the claims that depend therefrom, are not anticipated by Kwak. Accordingly, withdrawal of the rejection of claims 21-24, 27, 29, 31, 33, 35-36 and 69 under 35 U.S.C. § 102(b) in view of Kwak is respectfully requested.

In addition, applicants submit that claims 21-24, 27, 29, 31, 33, 35-36 and 69 are not rendered obvious under 35 U.S.C. § 103 in view of Kwak. Kwak only refers to fusion proteins. Kwak does not contemplate that the chemokine and the antigen can be administered as separate entities that are not physically linked. In addition, Kwak teaches away from the claimed invention because Kwak expressly states, for example, on page 47, lines 16-20 and on page 48, lines 6-15, that the chemokine must be physically linked to the antigen. Therefore, there is no suggestion or motivation to modify Kwak to arrive at the claimed invention. Furthermore, any such modification would not have a reasonable expectation of success in view of Kwak. Accordingly, applicants submit that claims 21-24, 27, 29, 31, 33, 35-36 and 69 are not rendered obvious under 35 U.S.C. § 103 in view of Kwak.

Rejection under 35 U.S.C. § 103

Claims 21-24, 26-36 and 69 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over European Patent Application Publication No. EP 0 974 357 A1 ("Caux"), in view of PCT International Publication No. WO 98/14573 ("Luster") and "Regulation of dendritic cell trafficking: a process that involves the participation of selective chemokines" ("Dieu-Nosjean"). Applicants have canceled claims 26, 28, 30, 32 and 34. Therefore, the rejection with respect to those claims is moot.

As stated previously, independent claim 21 has been amended.

The subject matter relating to MCP-4 in Caux does not qualify as prior art. As stated in applicants' amendment and response to the previous office action (response mailed May 13, 2003) and applicants' Declarations under 37 C.F.R. § 1.132, the subject matter relating to MCP-4 in Caux and in the present application was invented by Christophe Caux and Alain P. Vicari. Accordingly, Caux, as it relates to MCP-4, describes applicants' work and does not constitute prior art against the pending claims.

Applicants submit that none of the above three references, either alone or in combination, teaches or suggests the method of claim 21. Because the subject matter relating to MCP-4 in Caux does not qualify as prior art, Caux may only be cited for its teaching that the combination of a chemokine, specifically MIP-3α and MIP-3β, and an antigen may be used to enhance an immune response. Applicants submit that it is not obvious from Caux that any chemokine in combination with an antigen can enhance an immune response.

Luster relates to MCP-4 polypeptides, nucleic acids encoding the polypeptides, and uses of the polypeptides. Luster merely discloses MCP-4 and the fact that it may be used to enhance an immune response. However, Luster does not disclose or suggest the administration of the combination of a chemokine (MCP-4) and an antigen in order to enhance the immune response in a mammal.

Dieu-Nosjean is a review article. Dieu-Nosjean does not teach the use of MCP-4 in combination with an antigen.

Applicants submit that when the disclosure in Caux relating to MCP-4 is taken away, the remaining references provide no suggestion or motivation to use the specific combination of MCP-4 and an antigen to enhance an immune response.

Furthermore, Dieu-Nosjean discloses numerous chemokines. At most, the combination of the cited references teach that it may be "obvious to try" administering MCP-4 and an antigen in order to enhance an immune response. However, "obvious to try" is not the standard under 35 U.S.C. § 103. A determination of obviousness requires some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. M.P.E.P. § 2143. Luster and Dieu-Nosjean, when combined with Caux, do not teach or suggest administering the combination of MCP-4 and an antigen in order to enhance an immune response, nor do they provide any reasonable expectation of success.

Even if it is deemed that the cited references provide a suggestion or motivation to arrive at the claimed invention, the inventors have shown unexpected results in the use of MCP-4 that renders the claims non-obvious. The unexpected results can be seen in Figures 4-7, and are described in Examples 7-9. As stated above, Caux focuses on MIP-3α and MIP-3β. Applicants have shown that MCP-4, when compared to MIP-3α and MIP-3β, exhibits superior properties or advantages that a person having ordinary skill in the art would not have expected. Specifically, Figure 4 and Example 7 show that MCP-4 injection can promote the recruitment of dendritic cells *in vivo* in the mouse in a dose dependent manner. In fact, Figure 5 and Example 8 show that MCP-4 is one of the most potent chemokines active on dendritic cells, exhibiting much greater effects than either MIP-3α or MIP-3β. Also, Figure 6 and Example 9 show that MCP-4 injection in mice increases the antigen specific humoral response following β-galactosidase DNA immunization. In addition, Figure 7 and Example 9 show that MCP-4 injection in mice increases the anti-tumor effect induced by β-galactosidase DNA immunization when mice were challenged with a carcinoma cell line that expresses β-galactosidase.

Therefore, applicants submit that the claims are not obvious in view of Caux, Luster and Dieu-Nosjean. Accordingly, withdrawal of the rejection of claims 21-24, 26-36 and 69 under 35 U.S.C. § 103(a) is respectfully requested.

Amendment to Claim 31

In order to correct a typographical error, claim 31 has been amended to depend from claim 27 rather than from claim 21.

CONCLUSION

Applicants submit that the claims are novel and not obvious in view of the cited references. Accordingly, reconsideration of the rejections and allowance of the claims at an early date are earnestly solicited.

If the undersigned can be of assistance in addressing issues to advance the application to allowance, please contact the undersigned at the number set forth below.

Respectfully submitted,

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